Inpatient care in Kazakhstan: A comparative analysis

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Background: Reforms in inpatient care are critical for the enhancement of the efficiency of health systems. It still remains the main costly sector of the health system, accounting for more than 60% of all expenditures. Inappropriate and ineffective use of the hospital infrastructure is also a big issue. We aimed to analyze statistical data on health indices and dynamics of the hospital stock in Kazakhstan in comparison with those of developed countries. **Materials and Methods:** Study design is comparative quantitative analysis of inpatient care indicators. We used information and analytical methods, content analysis, mathematical treatment, and comparative analysis of statistical data on health system and dynamics of hospital stock in Kazakhstan and some other countries of the world [Organization for Economic Cooperation and Development (OECD), USA, Canada, Russia, China, Japan, and Korea] over the period 2001-2011. **Results**: Despite substantial and continuous reductions over the past 10 years, hospitalization rates in Kazakhstan still remain high compared to some developed countries, including those of the OECD. In fact, the hospital stay length for all patients in Kazakhstan in 2011 is around 9.9 days, hospitalization ratio per 100 people is 16.3, and hospital beds capacity is 100 per 10,000 inhabitants. **Conclusion:** The decreased level of beds may adversely affect both medical organization and health system operations. Alternatives to the existing inpatient care are now being explored. The introduction of the unified national healthcare system allows shifting the primary focus on primary care organizations, which can decrease the demand on inpatient care as a result of improving the health status of people at the primary care level.

Key words: Comparative study, hospital beds, hospital stock, inpatient care, public health

INTRODUCTION

The system of health care in Kazakhstan developed within the Soviet model, which was focused on patient care, while primary health care sector and health promotion services received little attention.

At the moment, the health care delivery system is in the process of reorganization. The purpose of the reorganization is to transform primary care through the implementation of general practice, followed by the closure of a number of small hospitals.

Kazakhstan has 913 hospitals and and 2752 outpatient settings (Ministry of Health data for 2012). The state owns 777 public hospitals and 1825 outpatient organizations.

The State Program for Development of Healthcare System "Salamatty Kazakhstan" and the current President's letter to the people of Kazakhstan address the need for the improvement of the quality and availability of medical care by establishing a strong competitive health system with advanced management and stable financing.[1] Reforms of inpatient care are crucial for the enhancement of the efficiency of the health system. Despite some latest positive shifts in inpatient care, it still remains the main costly sector of the health system, accounting for more than 60% of all expenditures. Inappropriate and ineffective use of the hospital infrastructure is also a big issue.[2]

One of the urgent issues in Kazakhstan is the need to increase responsibility at primary care and to switch accents from inpatient to outpatient care.[2] Owing to the initial measures of the State Program for Development of Healthcare System "Salamatty Kazakhstan," planned for the period 2011-2015, certain positive changes are taking place in the Republic's outpatient care, with a trend of continuity.[1,3] Though considerable reductions have taken place over the last 10 years, the indices of hospitalization are still high as compared to organization for economic cooperation and development.

Objective of the current study was to comparatively analyze health indices and dynamics of hospital stock in Kazakhstan over the past 10 years.

MATERIALS AND METHODS

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We analyzed inpatient care indicators in Kazakhstan using the Organization for Economic Cooperation and Development (OECD) Health Data (2012) and Statistic Database of the Ministry of Health of Kazakhstan (2001-2011). Health indices and dynamics of hospital stock in Kazakhstan were quantitatively compared to the same data of the OECD countries, USA, Canada, Russia, China, Japan, and Korea, for a period of 2001-2011. The study was based on processing of statistical information, mathematical treatment, and comparative analysis.

RESULTS

Achievements in inpatient care

Total number of hospitals in Kazakhstan was 972 in 2001, with an increase to 1215 in 2005. A substantial decrease to the level of 1130 took place in 2010, which further decreased to 1069 in 2011.[4,5] Though some private hospitals were opened over the past 10 years, the number of all hospitals was lower than that in 2001-2011.

Hospital beds in Kazakhstan gradually decreased and reached a minimum of 69.9 per 10,000 population in 2001. Over the following 10 years, provision with hospital beds was 77.2 and 70.6 per 10,000 population in 2005 and 2011, respectively.[6,7] These figures, however, are greater than that in the enlarged European Union (61.1 per 10,000 population) but much lower compared to that in the Russian Federation (111.6 per 10,000 population) and Belarus (113.4 per 10,000 population) (WHO, 2006).[8,9]

Comparative analysis of the provision with hospital beds revealed that the same countries with the lowest hospital admission rate had the lowest beds' density: 3.0 and 2.5 per 1000 inhabitants, respectively, in Albania and Turkey [Figure 1]. By contrast, beds' density was high in Russia (11.1 per 1000 inhabitants) and Ukraine (8.8 per 1000 inhabitants).

Bed space in all OECD countries substantially reduced from 1985 onward, with the USA, Sweden, Portugal, Italy, and Australia halving or even further decreasing the number of beds per 1000 population registered in Kazakhstan.[3,10] For example, the level of hospital stock in Sweden in 1985 was 14.6 per 10,000 population, exceeding the same index in Kazakhstan. However, Sweden managed to reduce the figure to 4.8 per 10,000 population in the last 10 years.

Throughout 2005-2010, the figures of hospital stock in Kazakhstan were similar to those in Italy over the period 1985-1990, where, unsurprisingly, hospital beds reduced more than twice from 8.3 in 1985 to 3.5 per 1000 in 2010. Australia reduced its hospital stock more gradually and less substantially compared with Sweden and Italy: From 6.2

in 1985 to 3.7 beds per 1000 population in 2010 [Figure 2].

Notably, there are some OECD countries with figures of hospital stock close to that of Kazakhstan: Austria 7.6, Czech Republic 7.0, Germany 8.3, Hungary 7.2, and Korea 8.8 per 1000.

Among all the OECD countries, Korea is the only country with an increase in hospital stock (tripled) over the past decades: 2.3 in 1990 and 8.8 per 1000 in 2010.[11]

Japan is among the world leaders in terms of the number of hospital beds, with 15.6 per 1000 in 1993 and 13.6 per 1000 in 2010.[12]

Figure 3 depicts comparative data on the number of hospital admissions in Kazakhstan and some European countries in 2006. It is apparent that hospital admissions are slightly lower in Kazakhstan (17.5) than the average figure for the European Union (18.4). The highest level of hospital admissions was registered in Belarus (29.0), Romania (25.0), Russia (23.0), and Ukraine (20.5), and the lowest in Albania (8.7) and Turkey (8.0).

The registration of admissions to private hospitals in Kazakhstan started in 2005, and 227,000 patients were admitted to the private sector in 2006. Of these, 132,700 patients were admitted within the frames of the State Guaranteed Benefits Package. In 2010 and 2011, 187,600
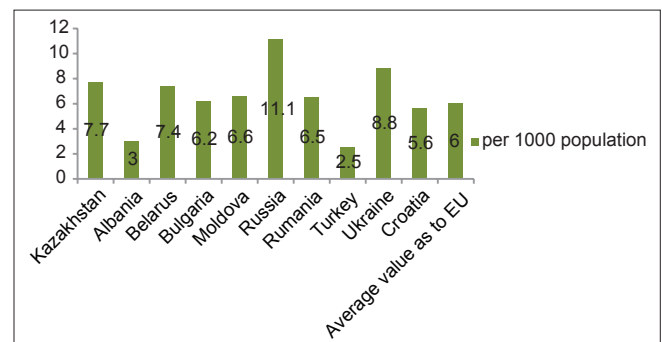

Figure 1: The density of beds per 1000 population in Kazakhstan and in selected countries of Europe (WHO, 2006; Ministry of health statistic database, 2006)
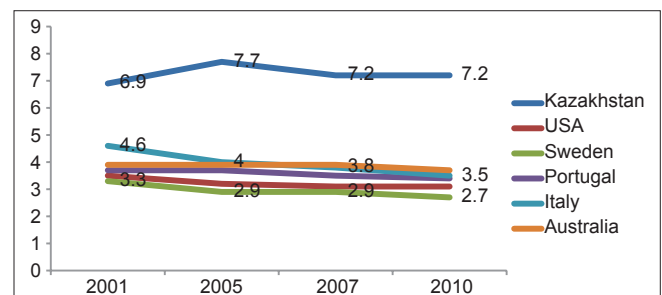

Figure 2: The density of beds per 10,000 population in Kazakhstan and in selected (OECD countries, 2001-2011 OECD health data, 2012; ministry of health statistic database, 2001-2011)
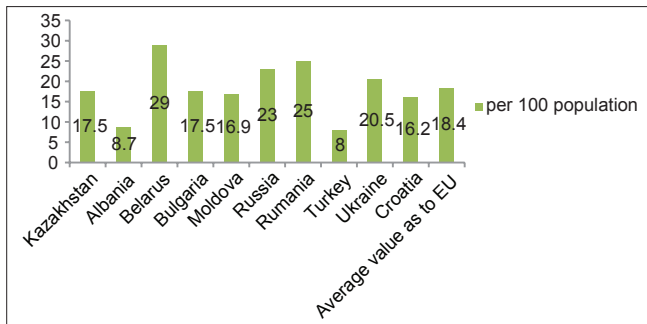
Figure 3: The number of hospital admissions per 100 population in Kazakhstan and in selected countries of Europe (WHO, 2006; Ministry of health statistic database, 2006)

and 168,300 patients received treatment in private hospitals, respectively, whereas 2,658,300 and 2,613,200 patients were treated in public hospitals in the same years.[13-16]

The average duration of the stay in hospitals in Kazakhstan was one of the lengthiest in the world in the 1990s, according to the WHO data.[4] Such a long period of bed-days remained over more than 10 years, and decreased from 17.0 to 14.1 in 2001. Furthermore, this trend continued up to 8.4 in 2010 and stabilized at 9.9 bed-days in 2011. This figure is comparable to the level of bed-days in Germany (9.7), Czech Republic (9.7), New Zealand (8.7), and China (8.6).

It should be mentioned, however, that Japan (18.5 bed-days), Korea (14.6), Russia (13.6), and Finland (12.5) still hold the leading positions with regard to the hospital stay.[11]

Focus on major diseases

A share of therapeutic diseases in the total morbidity patterns is 46.3% (48.2% in 2001). Over the last 10 years, the highest mortality in the Republic of Kazakhstan (RK) population mortality patterns was caused by therapeutic diseases (635.0 cases per 100,000 in 2007), and in its course, it had a constant tendency to increase to some extent, while the total mortality rate in RK is 8.71 per 1000 population.[1]

Therapeutic diseases rank first according to the mortality and disability level, constituting an immediate problem not only for the public health system due to a high cost of treatment procedures, clinical course duration, and a high invalidization of the population, but also for the social and economic systems of the branch, as consequently, labor resources decrease and are lost, social allocations increase, and there occurs loss of human labor resources and material labor resources.

The circulatory, respiratory, and digestive diseases are the principal ones among all therapeutic diseases with respect to the population morbidity, mortality, and invalidization rates.[1,2] Over the last 10 years, the total morbidity rate per 100,000 population in view of the said diseases changed

as follows: There was a slight decline in the respiratory diseases rate from 31,050.3 in 2001 to 29,840.1 in 2011, in the digestive diseases rate from 10,144.4 in 2001 to 9189.5 in 2011, and a multiple increase in the circulatory diseases rate from 2605.2 in 2001 to 11,751.1 in 2011.

The cardiovascular diseases rank first among the causes of disability and mortality of the population in the RK, in which respect this problem is urgent and socially significant. Over the last 10 years, the total morbidity rate for the RK population suffering from circulatory diseases had a tendency to a steady increase. In general, the total number of patients suffering from circulatory diseases is currently over 10% of the total population in the RK.[8,12]

The dynamics of the total morbidity rate from cardiovascular diseases in RK showed a steady increase over 2001-2011. The statistically average data on the total morbidity rate from circulatory diseases increased by 451% (or 4.5 times more). The total number of registered patients in RK by 2011 was 1,945,822. Such increase might be connected not only with the enhancement of diagnostic possibilities of cardiologic service by Regulation No. 102 of the RK Government, "On approval of development program for cardiologic and cardiac surgery service in the RK for 2007-2009" dated February 13, 2007, but also with the actual increase in the "army" of cardiologic patients. In turn, this may be indicative of insufficient efficiency of medical and preventive measures currently being taken.[3,5]

It should be noted that the therapeutic profile of beds in Kazakhstan is represented by both general therapeutic and cardiologic, gastroenterological, allergic, endocrinologic, hematologic, nephrologic, rheumatologic, and pulmonogic beds.[17] The number of cardiologic beds in 2011 was 3196 (2212 in 2001). In 10 years, the rate of provision of the population with therapeutic beds increased from 5.5 in 2001 to 9.5 in 2011, and with cardiologic beds increased from 1.5 in 2001 to 1.9 in 2011 [Figure 4].

The actual therapeutic practice shows that each medical patient should be examined and given advice by a wide range of specialists.

DISCUSSION

Based on the global data, the share of inpatient care ranges between 50 and 70% of the total budget allocated to public health services. Most often, the number of hospital beds exceeds the real needs, and there is a problem of inappropriate and ineffective use of hospital stock.[2,3,5]
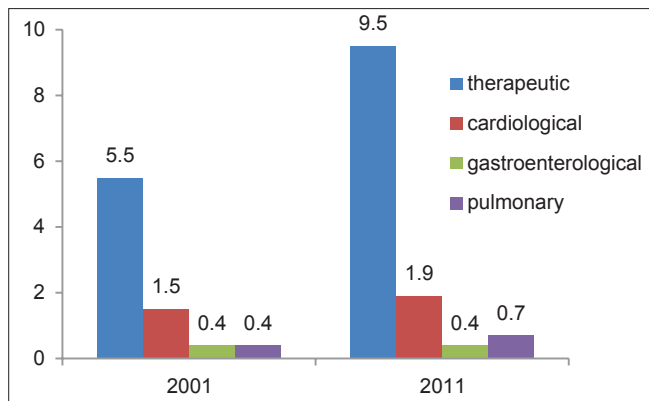
According to WHO, the use of hospital facilities has

Figure 4: Provision of population with therapeutic beds in Kazakhstan over 2001-2011 (Ministry of health statistic database, 2001-2011)

substantially decreased in some countries since 1991. This is particularly the case in the Eastern European countries and in the republics of the former Soviet Union in the transition to free market economy.

The Central Bureau of Statistics, however, recorded the same trend in Finland and Sweden, where the decrease reached 47% and 45%, respectively. In Western European countries, the hospital stock reduced just by 10-20%. The Netherlands, for example, dramatically shortened the duration of patients' stay in hospitals, and at the same time slightly decreased the number of hospital beds. Apparently, all these changes took place as a result of thoughtful health care reforms and delegation of some health functions to the social sector.[4,7] In fact, in Sweden, under the Adele's Reform in 1992, the municipalities took responsibility for long-term health care. Moreover, a network of nursing and hospice facilities was established in Denmark. Likewise, some social and health problems related to lengthy hospitalizations were solved in Britain through the establishment of nursing care homes.

In some Eastern European countries, particularly in Albania, health care facilities reduced to a minimal level and even closed down due to "unfavorable" political and economic situation. Supported by the World Bank's loan, some health care settings reorganized into primary care organizations.[18]

In an attempt to increase the overall efficiency of health care, many European countries reduced the number of hospital beds, but achieved mixed results. In fact, the low level of beds led to the lengthy waiting lists for specialty care, particularly in Ireland, Denmark, the United Kingdom, and Australia. In these countries, the problems with waiting lists created difficulties with hospitalizations to emergency departments.

As for Kazakhstan, there has been a tendency to reduce hospital stock over the past 20 years. According to WHO, a drastic reduction was recorded in 1991-1995, which coincided with the economic slowdown and underfunding of health care. Nonetheless, the situation changed due to economic and health reforms, starting from 2000. From 2005 onward, this trend became stable.

The sharp reduction of hospital beds may adversely affect health care structure and functions. Further analysis of hospitalization rates and consequences of the reductions in Kazakhstan and other countries are warranted.

The rate of provision with hospital beds reduced to 70.2 per 10,000 inhabitants in 2011 (73.1 beds in 2005) in accordance with the State Program of Kazakhstan. It is evident that the hospital stock is still used irrationally. In fact, 2.5 million patients (15.5% of the total population) are treated annually in more than 1000 hospitals in Kazakhstan. Of these patients, one third does not need inpatient care at all. Importantly, 35% of the institutionalized patients are children and retired pensioners, requiring 60% of the whole expenditure for inpatient care.

Currently, new approaches and technologies are required to gradually replace inpatient care. Preliminary experience has accumulated the following data: 445,100 patients in 2011 (278,813 in 2005) were treated in day-care outpatient settings in Kazakhstan, 64,081 (56,728 in 2005) in day-care inpatient settings, and 158,758 (155,480 in 2005) at their homes.

Moreover, 104.5 million patients visited the outpatient settings in 2009 (99.3 million in 2005).

CONCLUSION

Based on the results of the comparative analysis and own experience of reforms in inpatient care in Kazakhstan, we come to the following conclusions:
- Dynamics in the reduction of inpatient care is reached
- The number of organizations with day-care facilities and beds has increased that may speed up reforms in primary health care.

The above-mentioned statistical data cannot fully reflect the existing situation as morbidity and disability cases are registered after references to doctors, there is no disease intelligence at an early stage, several patients just do not visit doctors and remain untreated and unobserved, and there is even no fact of registration of a disease.

In the Republic over 2001-2011 the primary morbidity from circulatory diseases ranked fourth, morbidity second, and mortality ranked first, and comparing it with the clinical features of cardiologic diseases, the following features of patients suffering from circulatory diseases may be noted.

There are many reasons for that. Patients who suffer from circulatory diseases see a doctor more often than the other patients, they are ill for a longer period, and there is a large number of them that enhances operating stress on the cardiologist. Moreover, one should note the fact that despite the development of the world pharmacological industry, the traditional medicinal treatment of circulatory diseases is inefficient and the traditional preventive control that is being currently carried out is insufficiently effective.

The problems of development and further improvement of therapeutic service are always pressing in the health care reform generally. An emphasis laid on the socially significant diseases, in particular, on the circulatory ones, should be of considerable importance in the health system basis.

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